# Ease of retrieval as information: another look at the availability heuristic

Schwarz, Norbert; Bless, Herbert; Strack, Fritz; Klumpp, Gisela; Simons, Annette

Veröffentlichungsversion / Published Version
Arbeitspapier / working paper

**Zur Verfügung gestellt in Kooperation mit / provided in cooperation with:**
GESIS - Leibniz-Institut für Sozialwissenschaften

# Ease of Retrieval as Information: Another Look at the Availability Heuristic

Norbert Schwarz, Herbert Bless, Fritz Strack,
Gisela Klumpp, Annette Simons

ZUMA-Arbeitsbericht Nr. 90/06

Zentrum für Umfragen, Methoden und
Analysen e.V. (ZUMA)
Postfach 122155
D-6800 Mannheim 1

Seit Juli 1983 sind die ZUMA-Arbeitsberichte in zwei Reihen aufgeteilt:

Die ZUMA-Arbeitsberichte (neue Folge) haben eine hausinterne Begutachtung durchlaufen und werden vom Geschäftsführenden Direktor zusammen mit den übrigen Wissenschaftlichen Leitern herausgegeben. Die Berichte dieser Reihe sind zur allgemeinen Weitergabe nach außen bestimmt.

Die ZUMA-Technischen Berichte dienen zur hausinternen Kommunikation bzw. zur Unterrichtung externer Kooperationspartner. Sie sind nicht zur allgemeinen Weitergabe bestimmt.

The enclosed reprint replaces ZUMA-Arbeitsbericht No. 90/06 by the same authors.

**N. Schwarz, H. Bless, F. Strack, G. Klumpp, H. Rittenauer-Schatka, & A. Simons (1991). Ease of retrieval as information: Another look at the availability heuristic. Journal of Personality and Social Psychology, 61, 195-202.**

Journal of Personality and Social Psychology
1991, Vol. 61, No. 2, 195-202


0022-3514/91/$3.00

# Ease of Retrieval as Information: Another Look at the Availability Heuristic

Norbert Schwarz
Zentrum für Umfragen, Methoden und Analysen
ZUMA, Mannheim, Federal Republic of Germany

Herbert Bless
Universität Mannheim
Mannheim, Federal Republic of Germany

Fritz Strack
Max Planck Institut für psychologische Forschung
Munich, Federal Republic of Germany

Gisela Klumpp, Helga Rittenauer-Schatka, and Annette Simons
Universität Heidelberg, Heidelberg, Federal Republic of Germany

Experienced ease of recall was found to qualify the implications of recalled content. Ss who had to recall 12 examples of assertive (unassertive) behaviors, which was difficult, rated themselves as less assertive (less unassertive) than subjects who had to recall 6 examples, which was easy. In fact, Ss reported higher assertiveness after recalling 12 unassertive rather than 12 assertive behaviors. Thus, self-assessments only reflected the implications of recalled content if recall was easy. The impact of ease of recall was eliminated when its informational value was discredited by a misattribution manipulation. The informative functions of subjective experiences are discussed.

One of the most widely shared assumptions in decision making as well as in social judgment research holds that people estimate the frequency of an event, or the likelihood of its occurrence, "by the ease with which instances or associations come to mind" (Tversky & Kahneman, 1973, p. 208). Since Tversky and Kahneman introduced this *availability heuristic,* it has stimulated a tremendous amount of research in social cognition (see Sherman & Corty, 1984; Strack, 1985, for reviews). However, the classic studies on the issue are surprisingly ambiguous regarding the underlying process. For example, in the most frequently cited study (Tversky & Kahneman, 1973, Experiment 8), subjects were read two lists of names, one presenting 19 famous men and 20 less famous women and the other presenting 19 famous women and 20 less famous men. When asked, subjects reported that there were more men than women in the first list but more women than men in the second list, even though the opposite was true (by a difference of 1). Presumably, the famous names were easier to recall than the nonfamous ones, resulting in an overestimate. In fact, subjects were able to recall about 50% more of the famous than of the nonfamous names. It remains unclear, however, what drives the overestimate: Were subjects' judgments based on the phenomenal experience of the ease or difficulty with which they could bring the famous and nonfamous names to mind, as Tversky and Kahneman's interpretation suggests? Or were their judgments based on the content of their recall, with famous names being overrepresented in the recalled sample?

In a related study (Tversky & Kahneman, 1973, Experiment 3), subjects were found to overestimate the number of words that began with the letter *r* but to underestimate the number of words that had *r* as the third letter. Similarly, Gabrielcik and Fazio (1984) observed that exposing subjects to subliminally presented words containing the letter *t* increased subjects' estimates of the frequency of *t* words. Again, these findings may reflect either that subjects could generate more words beginning with an *r*, or including a *t* if primed or that they relied on the ease with which relevant exemplars could be called to mind. Similar ambiguities apply to other studies (see Sherman & Corty, 1984; Strack, 1985; Taylor, 1982, for reviews). Typically, the manipulations that are introduced to increase the subjectively experienced ease of recall are also likely to affect the amount of subjects' recall. As a result, it is difficult to evaluate if the obtained estimates of frequency, likelihood, or typicality are based on subjects' subjective experiences or on a biased sample of recalled information. As Taylor (1982) noted, the latter possibility would render the availability heuristic rather trivial—after all, "one's judgments are always based on what comes to mind" (p. 199).

In the present article, we report three studies that were designed to disentangle the impact of content of recall and of the subjective experience of ease or difficulty that may accompany recall. In all studies, we introduced conditions under which the implications of experienced ease of recall were opposite to the implications of the content of recall per se. In addition, we manipulated the perceived diagnosticity of the experienced ease of recall, using misattribution manipulations (Experiment 3). We first introduce the basic logic and the findings of our experiments and subsequently discuss the informational functions of experienced ease of recall in the context of a more general conceptualization of the informational functions of subjective experiences (Schwarz, 1990; Schwarz & Clore, 1988).

The reported research is based in part on the diploma theses of Gisela Klumpp, Annette Simons (Experiment 1), and Helga Rittenauer-Schatka (Experiment 2), conducted at the Universität Heidelberg under the direction of Norbert Schwarz, Herbert Bless, and Fritz Strack. The studies were supported by Grants Schw278/2 and Str264/2 from the Deutsche Forschungsgemeinschaft to Norbert Schwarz and Fritz Strack and Grant Schw278/5 to Norbert Schwarz, Herbert Bless, and Gerd Bohner.

We thank Leslie Clark, Tory Higgins, Bob Wyer, and three anonymous reviewers for helpful comments on a draft of the article.

Correspondence concerning this article should be addressed to Norbert Schwarz, Zentrum für Umfragen, Methoden und Analysen, ZUMA, P.O. Box 122155, D-6800 Mannheim, Federal Republic of Germany.

## Experiment 1: If It Is So Difficult to Recall, It Cannot Be Typical

Suppose that people are asked to report a certain number of examples of particularly assertive, or of particularly unassertive, behaviors that they have recently engaged in. Presumably, reporting these behaviors would increase their cognitive accessibility in memory, making it more likely that these behaviors come to mind when the people are later asked to evaluate their own assertiveness. As a result, one should find that people who had to report assertive behaviors report higher assertiveness than people who had to report unassertive behaviors, reflecting that the previously reported examples resulted in a biased sample of relevant behaviors. As long as people consider only the content of what they recall, the more examples they have to report, the more pronounced this effect should be. Such content-based predictions may be derived from numerous models of self-related judgment (e.g., Bem, 1972; Wyer & Srull, 1989).

Suppose, however, that people not only rely on what comes to mind but also pay attention to the subjective experiences that accompany the recall process. If so, the subjective experience that it is very difficult to recall examples of one's own assertive behaviors may imply that one cannot be that assertive after all, or thinking of examples would not be that difficult. To the extent that the experienced difficulty of recall increases with the number of examples that are to be reported, ease of recall and content of recall would lead to different conclusions: Whereas the content of the recalled examples would suggest that one is very assertive (or very unassertive), the difficulty experienced in recalling these examples would suggest that they cannot be frequent and typical. Hence, one may conclude that one is probably not as assertive (or unassertive) as the recalled behaviors would seem to imply. Accordingly, the experienced difficulty of recall may qualify the implications of recalled content.

In Experiment 1, we tested this prediction by asking subjects to describe either 6 or 12 examples of very assertive or very unassertive behaviors in which they had engaged. Pretests indicated that most subjects could easily generate 8 or 9 behaviors but found it very difficult to generate more than 10. Subsequently, subjects were asked to rate their own assertiveness along several items.

If subjects base assessments of their own assertiveness solely on the relevant behavior that comes to mind, subjects who have to report examples of assertive behavior should rate themselves as more assertive than subjects who have to report examples of unassertive behavior. Moreover, the more examples subjects have to report, the more pronounced the impact of recalled content should be. Thus, a content-based judgment process will predict additive effects of type of example and number of examples requested. If subjects consider the content of their recall in the light of the ease or difficulty with which they can generate the requested examples, however, these additive effects should not be obtained. Rather, the impact of recalled content should be less pronounced, the more examples subjects have to report because the difficulty of doing so should imply that the recalled examples are not very frequent and typical. Hence, subjects should rate themselves as less assertive (or unassertive) after recalling 12 rather than 6 examples, indicating that the implications of recalled content are qualified by the ease or difficulty with which this content could be brought to mind.

### *Method*

Forty female students at a German university participated in a 2 (examples of assertive vs. unassertive behaviors) × 2 (6 vs. 12 examples) factorial between-subjects experiment. Subjects were randomly assigned to conditions and tested in groups of 4.

All subjects were informed that the study was concerned with developing role-playing scenarios that could be used in future relaxation training. To help with the development of these scenarios, they were asked to describe either 6 or 12 examples of situations in which they "behaved very assertively and felt at ease" or of situations in which they "behaved unassertively and felt insecure." Pretests indicated that generating 6 examples was experienced as an easy task, whereas generating 12 examples was difficult. Subjects reported their examples on answer sheets that provided three lines for each example.

After completion of this task, subjects were asked to answer some general questions, purportedly designed to explore students' interest in participating in a relaxation-training program. These questions asked subjects to evaluate their assertiveness, their feelings of insecurity, and their feelings of anxiety along 10-point scales. Given the high internal consistency of these ratings (Cronbach's alpha = .76), the mean of these ratings was used as the major dependent variable; higher values indicated higher assertiveness.

In addition, subjects rated how difficult it was to generate the requested number of examples on a scale ranging from *not at all difficult* (1) to *very difficult* (10), thus providing a direct measure of experienced ease of recall.

### *Results*

*Manipulation check.* Analyses of subjects' reported ease of retrieval indicated that subjects found it easier to report 6 ($M$ = 5.1) rather than 12 ($M$ = 7.2) examples, $F(1, 36) = 4.2$, $p < .05$. No other effect emerged ($F < 1$).

*Mean differences.* As shown in Table 1, subjects who had to describe examples of assertive behaviors rated themselves as more assertive after describing 6 ($M$ = 6.3) rather than 12 ($M$ = 5.2) examples. Conversely, subjects who had to describe examples of unassertive behaviors rated themselves as less assertive after describing 6 ($M$ = 5.2) rather than 12 ($M$ = 6.2) examples. This crossover pattern was reflected in a marginally significant Valence × Number of Examples Requested interaction, $F(1, 36) = 3.40$, $p < .07$[1], whereas neither of the main effects reached significance ($F < 1$).[1]

These findings indicate that subjects did consider the experienced ease of recall in evaluating their own assertiveness. In fact, subjects rated themselves as more assertive after describing examples of assertive rather than unassertive behaviors only if the recall task was easy. When the recall task was difficult, their self-rating was opposite to the implications of recalled content, despite the fact that more examples had been recalled. This pattern of findings could not be accounted for on the basis of recalled content per se.[2] Rather, it reflected that the implications of recalled content were qualified by the ease with which the respective content could be brought to mind.

[1] The statistical weakness of this interaction is of little concern because this pattern replicates consistently in subsequent experiments.

[2] It was conceivable, however, that the representativeness of the recalled examples decreased with increasing number of examples requested. This issue was addressed in Experiment 2, which ruled out this possibility, as described below.

Table 1
*Ratings of Assertiveness as a Function of Valence and Number of Recalled Behaviors*

| No. recalled examples | Type of behavior | |
|---|---|---|
| | Assertive | Unassertive |
| 6 | 6.3 | 5.2 |
| 12 | 5.2 | 6.2 |

*Note.* $n = 9$ or 10 per condition. Mean score of three questions is given; possible range is 1 to 10; higher values reflect higher assertiveness.

*Correlational analyses.* This conclusion is further supported by correlational analyses. Specifically, the more difficult subjects who had to recall assertive behaviors found the recall task, the lower the assertiveness they reported, $r(20) = -.35$, $p = .12$. In contrast, the more difficult subjects who had to report examples of unassertive behaviors found the task, the higher the assertiveness they reported, $r(20) = .66$, $p < .002$. Both correlations differ reliably from one another ($z = 3.38$, $p < .001$).

### Discussion

In summary, the present findings suggest that the content of recall affected self-judgments in the direction of the valence of the recalled behaviors only if the recall process itself was experienced as easy. If the recall process elicited experiences of difficulty, on the other hand, the content of recall affected self-judgments in a direction opposite to the implications of the recalled behaviors. Hence, we may conclude that the phenomenal experience of ease or difficulty of recall may qualify the implications of what comes to mind, even to the extent that the inferences drawn are opposite in valence to the implications of recalled content.

## Experiment 2: An Extended Replication

Given the marginal significance of the interaction obtained in Experiment 1, a replication of this finding would be welcome. Experiment 2 was designed to provide this replication and extended the previous study by manipulating the perceived diagnosticity of experienced ease of retrieval. Subjects were again asked to report 6 or 12 examples of assertive or unassertive behavior. However, some subjects were informed that most participants of a previous study had found it easy to complete this task, whereas other subjects were told that most previous participants found the task difficult. We expected that subjects who were told that their subjective experience of ease or difficulty of recall was shared by most other subjects would be likely to attribute their experience to characteristics of the task. If so, they might perceive their subjective experience of ease or difficulty as being less diagnostic and might therefore be less likely to consider it when making a self-judgment (cf. Kelley, 1967). In contrast, subjects who were told that their own experience of ease or difficulty contradicted the typical experience of similar others might be more likely to perceive their apparently unique phenomenal experience as reflecting the frequency of the respective behaviors in their own repertoire. If so, they would be more likely to rely on their subjective experience of ease or difficulty of retrieval in making self-judgments.

### Method

One hundred fifty-eight students (113 women and 45 men) of a West German teachers' college were asked to report either 6 or 12 examples of assertive or unassertive behavior and were informed either that most previous participants had found it easy or that most previous participants had found it difficult to complete this task. The latter manipulation should increase the perceived diagnosticity of ease or difficulty of retrieval under conditions in which subjects' own experience deviates from the alleged experience of previous participants, that is, in which subjects find the task easy (6 examples) but are told others found it difficult or in which subjects find the task difficult (12 examples) but are told others found it easy. Conversely, this information should decrease perceived diagnosticity under conditions in which subjects' experience coincides with the alleged experience of most other participants.

In combination, these manipulations constituted a 2 (examples of assertive vs. unassertive behaviors) × 2 (6 vs. 12 examples) × 2 (low vs. high diagnosticity of ease of recall) factorial between-subjects design. Subjects were randomly assigned to conditions, and all subjects were tested in one session in a lecture hall setting.

The cover story and procedure used closely followed the procedure described in Experiment 1, except that the study was said to be concerned with the development of assertiveness (rather than relaxation) training. After completing the requested number of examples, subjects responded to a short questionnaire that purportedly assessed students' interest in participating in assertiveness training. Specifically, subjects rated their own assertiveness, their desire to be more assertive, and their interest in assertiveness training along 9-point bipolar scales. The mean score of these variables (Cronbach's alpha = .72) was used as the dependent variable; high values indicated high assertiveness.

### Results

*Manipulation check.* Analysis of variance again indicated that subjects experienced recalling 6 examples as easier ($M = 4.8$) than recalling 12 examples ($M = 7.4$), $F(1, 142) = 5.2$, $p < .02$. No other effect reached significance.

*Mean differences.* Analyses of variance including subjects' sex revealed a main effect of sex, $F(1, 142) = 7.15$, $p < .01$, indicating that men reported higher assertiveness than did women. However, sex of subjects did not interact with any of the experimental variables (all $F < 1$) and was therefore ignored in the following analyses.

As shown in Table 2, the present study replicated the previous findings. Specifically, subjects who had to describe examples of assertive behaviors rated themselves as more asser-

Table 2
*Ratings of Assertiveness as a Function of Valence and Number of Recalled Behaviors and Others' Ease of Recall*

| No. recalled examples | Diagnosticity of ease of recall | | | |
|---|---|---|---|---|
| | Low | | High | |
| | Assert | Unassert | Assert | Unassert |
| 6 | 5.1 | 5.0 | 5.2 | 4.5 |
| 12 | 4.7 | 5.2 | 4.7 | 5.4 |

*Note.* $n = 18$ to 20 per condition. Mean score of five questions is given; possible range is 1 to 9; higher values reflect higher assertiveness. Assert = assertive; Unassert = unassertive.

tive after describing 6 examples ($M = 5.2$) rather than 12 examples ($M = 4.7$). Conversely, subjects who had to describe examples of unassertive behavior rated themselves as less assertive after describing 6 examples ($M = 4.7$) rather than 12 examples ($M = 5.3$). This crossover pattern was reflected in a significant Valence × Number of Examples Requested interaction, $F(1, 142) = 6.35$, $p < .02$. As in Experiment 1, no main effects of valence or number of examples emerged ($F < 1$).

Contrary to predictions, however, the manipulation of the perceived diagnosticity of the experienced ease of recall had no significant impact on subjects' self-assessment. Although separate analyses revealed a significant Valence × Number of Examples interaction under high-diagnosticity conditions, $F(1, 76) = 5.98$, $p < .03$, but not under low-diagnosticity conditions ($F < 1$), the triple interaction failed to reach significance ($F < 1$). We return to this issue below.

*Correlational analyses.* The interpretation that subjects' self-assessments of assertiveness were mediated by the subjective experience of ease of retrieval is again supported by correlational analyses. Specifically, subjects who had to report examples of unassertive behavior reported higher assertiveness the more difficult they found the task ($r = .32$, $p < .002$). In contrast, subjects who had to report examples of assertive behavior reported lower assertiveness the more difficult they found the task ($r = -.12$, $p = .15$), and both correlations differ significantly from one another ($z = 2.77$, $p < .003$).

*Self-perception.* A possible alternative account of the obtained findings of this and the previous experiment required additional analyses. To the extent that recalling many examples is difficult, the more examples subjects are to report, the more the representativeness of the recalled examples may decrease. Thus, subjects who have to recall 12 examples may eventually include examples that are less extreme to complete their task. If so, a content-based judgmental process may produce a similar pattern of findings, reflecting that the inclusion of less extreme examples may dilute the impact of more extreme ones (cf. Nisbett, Zukier, & Lemley, 1981).

To test this possibility, the extremity of the last two examples provided by 5 randomly selected subjects from each condition of Experiment 2 was rated by two independent judges on a scale ranging from *very unassertive* (1) to *very assertive* (11). Interrater reliability was high ($r = .92$), and examples of assertive behaviors ($M = 9.6$) differed reliably from examples of unassertive behaviors ($M = 2.8$), $F(1, 32) = 663.0$, $p < .001$. More important, planned comparisons indicated that the last 2 examples provided by subjects who had to report 12 examples were, if anything, better exemplars of the requested type of behavior than the last 2 examples provided by subjects who had to recall only 6 examples: ($Ms = 9.8$ and 9.4), $F < 1$, for 12 and 6 assertive behaviors, respectively; ($Ms = 2.3$ and 3.3), $F(1, 32) = 4.26$, $p < .05$, for 12 and 6 unassertive behaviors, respectively.

Thus, although differences in the quality of the recalled behaviors did emerge in the unassertive examples conditions, these differences were opposite to those found in subjects' judgments, lending no support to the hypothesis that subjects' judgments were mediated by differential content rather than by the subjective experience of ease of recall.

### Discussion

In summary, Experiment 2 replicated the previously obtained interaction, indicating that the implications of recalled content were qualified by the ease with which this content could be brought to mind. In contrast to our expectations, however, informing subjects that most previous participants found the task easy or difficult, respectively, did not result in a significant triple interaction, although separate analyses under each diagnosticity condition provided some support for our reasoning. In retrospect, the standard that we introduced might have been less relevant for subjects' self-judgments than we had assumed a priori: Whereas the diagnosticity manipulation referred to others' experience, the requested judgment was not a comparative one. Individuals may use their own feelings and aspirations, rather than the behavior of others, in evaluating how assertive they are. If they can easily recall situations in which they behaved unassertively, for example, this may be bothersome no matter if others can do so just as easily or not. Moreover, informing subjects about others' experienced ease or difficulty of recall may have focused their attention even more on their own phenomenal experience, thus increasing its impact. Accordingly, a different manipulation of the diagnosticity of ease of retrieval is used in Experiment 3.

At the same time, the failure to obtain a pronounced impact of the alleged typical recall performance renders a possible variation of the ease-of-recall account less plausible. Specifically, one might argue that asking subjects to report 12 examples of a given class of behaviors may convey that most people are probably able to do so. If so, the experienced difficulty in meeting this expectation might imply that one has less of the respective trait than many other people. Accordingly, the obtained findings would reflect the experience of ease or difficulty in meeting a certain standard, rather than the experience of ease or difficulty of recall per se. If so, however, one would expect a pronounced impact of explicit information about the ease or difficulty with which others can perform the recall task. That this manipulation showed little effect renders an ease-of-meeting-a-standard account less compelling.

## Experiment 3: Misattributing the Ease of Recall

Reflecting the assumption that others' performance may not be germane to the informational value of subjective experiences, as discussed above, a different manipulation of perceived diagnosticity of ease of retrieval was used in Experiment 3. As previous research on the informational functions of another subjective experience—namely mood—indicated, the diagnosticity of subjective states can be manipulated by misattribution manipulations. For example, attributing one's feelings correctly (Schwarz & Clore, 1983, Experiment 1) or incorrectly (Schwarz & Clore, 1983, Experiment 2; Schwarz, Servay, & Kumpf, 1985) to a transient source that is irrelevant to the judgment at hand was found to eliminate the impact of affective states on subsequent judgments (see Schwarz, 1987, 1990; Schwarz & Clore, 1988, for reviews). Similarly, misattributing one's arousal to an irrelevant source (e.g., Zanna & Cooper, 1974; Zillman & Bryant, 1974) was found to eliminate the effects of arousal states (see Zanna & Cooper, 1976; Zillman, 1978, for reviews).

Following these lines of research, we introduced a misattribution manipulation in Experiment 3. Specifically, we informed subjects that the study was concerned with the impact of different types of music on the recall of autobiographical experiences. All subjects were exposed, by means of head-

phones to a piece of meditation music. Some subjects were informed that this music facilitated the recall of situations in which one behaved assertively and felt at ease, whereas others were informed that it facilitated the recall of situations in which one behaved unassertively and felt insecure. After these instructions, subjects had to describe either 6 or 12 examples of assertive or unassertive behaviors, replicating the previous experiments.

Following Kelley's (1972) reasoning about augmentation and discounting effects, we expected the alleged side effects of exposure to meditation music to moderate the impact of subjects' experienced ease of recall on their self-assessment of assertiveness. Most important, subjects whose subjective experience contradicted the alleged side effect of the music would consider this experience particularly diagnostic and would use it in their self-assessment. Accordingly, their self-rating would only reflect the content of recall if recall was easy, and not if it was difficult, replicating the previously obtained findings.

Predictions are somewhat more complex, however, for subjects who can attribute their subjective experience to the music, thus rendering it nondiagnostic. On the one hand, these subjects may turn to the content of their recall to evaluate their assertiveness, given that the informational value of their subjective experience has been discredited. If so, they should report higher assertiveness after recalling 12 rather than 6 examples of assertive behaviors and lower assertiveness after recalling 12 rather than 6 examples of unassertive behaviors, despite the difficulty that they experienced in doing so. Thus, within each valence condition, discrediting the informative value of experienced ease or difficulty of recall should result in a data pattern that is opposite to the pattern observed in the previous experiments.

On the other hand, discrediting the informational value of experienced ease of retrieval may lead to self-assessments that are opposite to the implications of recalled content under some conditions. Much as self-assessments were found to deviate from the content of recall when recall was difficult, they may be expected to deviate from the content of recall if recall is easy, but for the wrong reasons. Specifically, subjects who can easily recall 6 examples of assertive (or unassertive) behavior but attribute the experienced ease to the alleged impact of the music may discount their subjective experience. This may render the typicality and frequency of the recalled behaviors dubious, resulting in lower ratings of assertiveness (or unassertiveness, respectively). If so, subjects who had to report 6 examples of assertive behavior may actually rate themselves as less assertive than subjects who had to recall 6 examples of unassertive behaviors under these conditions. A similar prediction cannot be derived, however, for subjects who have to recall 12 examples under low-diagnosticity conditions. In this case, the misattribution manipulation implies that the impact of the music may render recall difficult, suggesting that the content of recall is informative despite the experienced difficulty. Accordingly, these subjects' self-ratings should reflect content, and no reversal between valence conditions should be obtained.

In summary, discrediting the informative value of experienced ease of recall may result in a data pattern that is opposite to the pattern observed in the previous experiments, either within or between the valence conditions, whereas the previously obtained pattern should replicate when the informational value of subjects' phenomenal experience is not called into question.

## *Method*

Seventy-eight female students of a West German university participated in a 2 (examples of assertive vs. unassertive behaviors) × 2 (6 vs. 12 examples) × 2 (high vs. low diagnosticity of experienced ease of recall) factorial between-subjects experiment. Subjects were randomly assigned to conditions and received all instructions from cassette players by means of headphones.

Subjects were told that the study was part of a research program concerned with the impact of music on the recall of autobiographical memories of different emotional valence. The present study was said to investigate the recall of a specific type of situation, namely situations in which one felt insecure or felt assertive and at ease, respectively. Accordingly, subjects were asked to describe either 6 or 12 examples of situations in which they "behaved *assertively* and felt at ease" or of situations in which they "behaved *unassertively* and felt insecure" while listening to meditation music, presented by means of headphones.

To manipulate the perceived diagnosticity of experienced ease of recall, subjects were told that the music was known to facilitate the recall of autobiographical memories that pertain to experiences characterized by assertiveness or by insecurity, respectively. If the music is said to facilitate the respective recall task, this alleged side effect should result in low diagnosticity of the experienced ease of retrieval associated with recalling 6 examples but high diagnosticity of the difficulty associated with recalling 12 examples. Conversely, if the music is said to facilitate recall of experiences that are opposite in valence to those the person is asked to recall, this should imply high diagnosticity of easy recall but low diagnosticity of difficult recall.

To draw attention to the alleged impact of the music, subjects were exposed to the music for 30 s and were asked to rate the music along several items before they began to work on the recall task. In addition, it was emphasized that the music might only develop its impact after a certain amount of exposure, and subjects were told that the time of exposure was varied in the present study. This information seemed necessary because the subjective experience of difficulty of recall does only emerge after a certain number of examples are reported. To draw attention to this information, subjects received a note that said the following:

> You will be exposed to the music
> ( ) for the first four minutes,
> ( ) for the first eight minutes,
> ( ) for the full duration of the recall task.

For all subjects, the full duration option was checked by the experimenter.

Following this information, subjects provided descriptions of the requested behavioral examples while listening to the music. Subsequently, they rated their own assertiveness, as well their desire to be more assertive, along 9-point scales. The mean score of these ratings was used as the major dependent variable, with higher values indicating higher assertiveness. In addition, a rating of the experienced ease of retrieval was obtained on a scale ranging from *easy* (1) to *difficult* (9).

## *Results and Discussion*

*Manipulation check.* As in the previous studies, subjects reported that recalling 6 examples ($M = 5.9$) was easier than recalling 12 examples ($M = 6.7$), although this difference did not reach significance, $F(1, 70) = 1.76$, *ns*. No other effects emerged.

*Mean differences.* Subjects' self-ratings of assertiveness are

Table 3
*Ratings of Assertiveness as a Function of Valence, Number of Recalled Behaviors, and Diagnosticity of Ease of Recall*

| No. recalled examples | Diagnosticity of ease of recall | | | |
|---|---|---|---|---|
| | Low | | High | |
| | Assert | Unassert | Assert | Unassert |
| 6 | 3.9 | 5.1 | 5.6 | 3.1 |
| 12 | 4.8 | 4.0 | 4.5 | 4.4 |

*Note.* $n$ is 9 or 10 per condition. Mean score of two questions is given; possible range is 1 to 9; higher values reflect higher assertiveness. Assert = assertive; Unassert = unassertive.

shown in Table 3, as a function of the experimental variables. Analysis of variance again indicated a significant Valence × Number of Examples Requested interaction, $F(1, 70) = 4.09$, $p < .04$. However, this interaction was qualified by a significant triple interaction, $F(1, 70) = 9.75$, $p < .001$, involving level of diagnosticity of experienced ease of retrieval.

Diagnoses of this triple interaction revealed that the previously obtained Valence × Number of Examples Requested interaction was restricted to conditions in which the alleged side effects of the music did not discredit the diagnosticity of experienced ease or difficulty of retrieval, $F(1, 70) = 5.97$, $p < .02$, for the simple interaction under high diagnosticity. Specifically, subjects who had to recall assertive behaviors reported higher assertiveness after describing 6 examples ($M = 5.6$) rather than 12 examples ($M = 4.5$), $t(70) = 1.55$, $p < .06$, one-tailed. Conversely, subjects who had to recall unassertive behaviors rated themselves as less assertive after describing 6 examples ($M = 3.1$) rather than 12 examples ($M = 4.4$), $t(70) = 1.91$, $p < .03$, one-tailed. This pattern replicates the key findings of Experiments 1 and 2, further illustrating the robustness of the effect, although no crossover was obtained in the present study.

This was not so, however, under low-diagnosticity conditions, in which the alleged side effects of the music rendered the experienced ease or difficulty of retrieval uninformative. In that case, comparisons within each valence condition suggest that subjects tended to rely on the content of recall, rather than on the ease with which that content came to mind. Specifically, subjects who had to report examples of assertive behaviors reported higher assertiveness after recalling 12 ($M = 4.8$) rather than 6 ($M = 3.9$) examples, $t(70) = 1.27$, $p < .10$, one-tailed. Similarly, subjects who had to recall examples of unassertive behaviors reported being less assertive after recalling 12 ($M = 4.0$) rather than 6 ($M = 5.11$) examples, $t(70) = 1.52$, $p < .06$, one-tailed. This impact of content of recall is reflected in a simple interaction that is opposite in direction to the one obtained under high diagnosticity conditions, $F(1, 70) = 3.88$, $p < .06$.

At the same time, diagnosis of this simple interaction by comparisons between both valence conditions indicates that subjects who had to recall 6 examples of assertive behaviors rated themselves as less assertive ($M = 3.9$) than subjects who had to recall 6 examples of unassertive behaviors ($M = 5.1$), $t(70) = 1.59$, $p < .06$, one-tailed. This suggests that subjects discounted the experienced ease of retrieval, resulting in a reversal between both valence conditions. Finally, such a reversal was not obtained when subjects had to recall 12 examples ($M = 4.8$ and 4.0 for assertive and unassertive examples, respectively), as suggested by the reasoning outlined in the introduction to this study.

In summary, the previously obtained Valence × Number of Examples interaction only emerged when the informational value of subjects' subjective experience of ease or difficulty of recall was not discredited. When the alleged side effects of the music did discredit the implications of subjects' subjective experience, subjects did not rely on their subjective experience. Rather, subjects who had to recall 6 examples of assertive behaviors reported lower assertiveness than subjects who had to recall 6 examples of unassertive behavior, presumably reflecting that they discounted the experienced ease of retrieval. This latter finding renders comparisons within each valence condition under low diagnosticity somewhat ambiguous, which would otherwise suggest that subjects in the low diagnosticity conditions relied primarily on the content of recall, as reflected in the more pronounced impact of recalling 12 rather than 6 examples.

*Correlational analyses.* As in the previous experiments, subjects who had to recall examples of unassertive behaviors reported higher assertiveness the more difficult they found the recall task ($r = .23$, $p = .15$), provided that the diagnosticity of ease of recall was not called into question. When the diagnosticity of ease of recall was discredited, on the other hand, both variables were uncorrelated ($r = .05$), as would be expected on the basis of the present theorizing, although the difference between correlations did not reach significance ($z = .60$). Finally, no significant correlation of reported ease of recall and assertiveness emerged under either high ($r = .03$) or low ($r = -.02$) diagnosticity conditions for subjects who had to report examples of assertive behavior, in contrast to the previous experiments. Subjects might have taken the induced expectations into account in making their ratings, thus obscuring the correlational relationships obtained in the previous experiments.

## General Discussion

### *Ease of Recall as Information*

In combination, the reported findings provide consistent support for the assumption that the implications of recalled content may be qualified by the ease or difficulty with which that content can be brought to mind. Although this assumption has enjoyed great popularity since Tversky and Kahneman's (1973) introduction of the availability heuristic, it had not been adequately tested in previous studies. Most important, these studies were open to the alternative interpretation that manipulations that affected the ease of recall could just as well affect the content of recall. Accordingly, the obtained findings could either be attributed to biased recall, reflecting what has been called the accessibility bias (cf. Iyengar, 1990) or to the accompanying subjective experience of greater ease of retrieval, reflecting the operation of the availability heuristic (Tversky & Kahneman, 1973), as Taylor (1982) noted.

By constructing conditions under which the implications of

what was recalled contradicted the implications of the subjectively experienced ease or difficulty with which it came to mind, we could disentangle the impact of both sources of information. In three experiments, subjects attributed themselves higher assertiveness after recalling 6 rather than 12 examples of assertive behavior and lower assertiveness after recalling 6 rather than 12 examples of unassertive behavior. If their judgment was solely based on the content of what they recalled, their self-attributions should have been more extreme the more examples they recalled—in particular because content analyses of the reported examples (presented as part of Experiment 2) provided no evidence that the larger number of examples requested decreased their representativeness. Accordingly, a judgmental process that is based on recalled content as the only source of information cannot account for the observed results.

Rather, the present findings indicate that people paid attention to the subjective experience of ease or difficulty of recall in drawing inferences from recalled content. Apparently, our subjects concluded that they can't be that assertive (or unassertive) if it is so difficult to recall the requested number of examples. In line with that assumption, their ratings of ease of recall were positively correlated with their self-assessment of assertiveness if they had to report examples of assertive behavior but were negatively correlated if they had to report examples of unassertive behavior. Most important, however, discrediting the experienced ease of recall by misattribution manipulations (Experiment 3) reversed the otherwise obtained pattern of findings. In this case, subjects reported higher assertiveness after recalling 12 rather than 6 examples of assertive behavior and lower assertiveness after recalling 12 rather than 6 examples of unassertive behavior.

In summary, we conclude that people not only consider what they recall in making a judgment but also use the ease or difficulty with which that content comes to mind as an additional source of information. Most notably, they only rely on the content of their recall if its implications are not called into question by the difficulty that they experience in bringing the relevant material to mind. In Experiments 1 and 2, the difficulty of recalling 12 examples qualified the conclusions drawn from the content of recall to such a degree that the obtained judgments were, in fact, opposite to the implications of recalled content. Thus, the present studies extend previous research on the availability heuristic by drawing attention to the other end of the ease-of-recall continuum: Our findings suggest that difficulty in recall may decrease judgments of frequency, probability, or typicality, much as ease of recall has been assumed to increase these judgments.

### *Informative Functions of Subjective Experiences*

In addition to bearing on the operation of the availability heuristic, the present studies extend previous research on the informative functions of subjective experiences. This research has primarily been concerned with the informational value of affective states (see Schwarz, 1987, 1990; Schwarz & Clore, 1988, for reviews) and has demonstrated that people may use their perceived affective state as a source of information, according to a "how do I feel about it" heuristic (e.g., Schwarz & Clore, 1983; Schwarz et al., 1985; Schwarz, Strack, Kommer, & Wagner, 1987). In doing so, people (mis)interpret their pre-existing affective state as a reaction to the object of judgment, resulting in more favorable evaluations under elated than under depressed moods, unless the diagnosticity of their feelings for the judgment at hand is called into question. Accordingly, people were found to rely on their feelings at the time of judgment only under conditions in which they could assume those feelings to reflect their affective reaction to the object of judgment.

As Clore and Parrott (in press) noted, it is informative to apply this logic to the operation of the availability heuristic. In principle, the availability heuristic reflects the correct insight that it is easier to recall frequent rather than rare events. What renders this heuristic error prone is that the experienced ease of retrieval may reflect the impact of variables other than frequency, such as the event's salience or vividness (cf. Nisbett & Ross, 1980). Hence, we may conclude that inappropriate applications of the availability heuristic reflect a process of misattribution: People rely on their subjective experience of ease of retrieval to the extent that they (mis)attribute it to frequency of occurrence, rather than to the impact of other variables.

The same logic may be extended to other subjective experiences, such as feelings of familiarity. For example, Jacoby and Dallas (1981; see also Jacoby & Kelley, 1987; Jacoby, Kelley, Brown, & Jasechko, 1989) observed in a recognition experiment that subjects could accurately identify rare words that had previously been shown to them but provided numerous false alarms in response to common words. As Clore and Parrot (in press) noted, subjects "apparently misattributed to recency of exposure the sense of familiarity that actually came from frequency of exposure."

In fact, the current analysis may be extended to the operation of priming phenomena in general (cf. Clore & Parrott, in press). This research (see Higgins & Bargh, 1987; Martin & Clark, 1990, for reviews) indicates that exposure to a concept increases the likelihood that this, rather than another, concept is subsequently used in interpreting ambiguous information. However, this effect is only obtained if subjects are not aware of the potential impact of the priming episode. Specifically, correlational analyses reported by Lombardi, Higgins, and Bargh (1987) indicated that priming effects were limited to subjects who were not able to consciously recall the primed concepts. In a more direct experimental test, Strack, Schwarz, Bless, Kübler, and Wänke (1990) observed that priming effects were not obtained when subjects were subtly reminded of the priming episode. These findings suggest that priming effects may only emerge if people misattribute the thoughts that come to mind to the impact of the stimulus information. If they, correctly, attribute the emerging thoughts to the impact of the priming procedure, on the other hand, priming effects seem unlikely to be obtained.

As this discussion indicates, social cognition research may benefit from paying closer attention to phenomenal experiences, a theme that has only recently captured researchers' attention (see Bargh, 1989; Jacoby & Kelley, 1987, for reviews). Although the default option is probably to use the content that comes to mind without further qualification, judgmental processes may also involve the use of subjective experiences as an additional source of data, which may qualify the implications of thought content. In using these data—be they affective states, the ease of retrieval, a sense of familiarity, or an emerging train

of thoughts—people may pay attention to their possible causes to determine their informational value. Most important, they will only use these subjective experiences as a basis of judgment if they can (mis)attribute them to the impact of the object of judgment. Whereas much remains to be learned about the informative functions of different subjective experiences, the present discussion suggests that the general logic developed in research on the informative functions of affective states (see Clore & Parrott, in press; Schwarz, 1990; Schwarz & Clore, 1988) may provide a fruitful heuristic framework for their conceptualization.

## References


Bargh, J. A. (1989). Conditional automaticity: Varieties of automatic influence in social perception and cognition. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 3–51). New York: Guilford Press.

Bem, D. J. (1972). Self-perception theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 6, pp. 1–62). San Diego, CA: Academic Press.

Clore, G. L., & Parrott, W. G. (in press). Moods and their vicissitudes: Thoughts and feelings as information. In J. Forgas (Ed.), *Emotion and social judgment*. Elmsford, NY: Pergamon Press.

Gabrielcik, A., & Fazio, R. H. (1984). Priming and frequency estimation: A strict test of the availability heuristic. *Personality and Social Psychology Bulletin, 10,* 85–89.

Higgins, E. T., & Bargh, J. A. (1987). Social cognition and social perception. *Annual Review of Psychology, 38,* 369–425.

Iyengar, S. (1990). The accessibility bias in politics: Television news and public opinion. *International Journal of Public Opinion Research, 2,* 1–15.

Jacoby, L. L., & Dallas, M. (1981). On the relationship between autobiographical memory and perceptual learning. *Journal of Experimental Psychology: General, 110,* 306–340.

Jacoby, L. L., & Kelley, C. M. (1987). Unconscious influences of memory for a prior event. *Personality and Social Psychology Bulletin, 13,* 314–336.

Jacoby, L. L., Kelley, C. M., Brown, J., & Jasechko, J. (1989). Becoming famous overnight: Limits on the ability to avoid unconscious influences of the past. *Journal of Personality and Social Psychology, 56,* 326–338.

Kelley, H. H. (1967). Attribution theory in social psychology. In D. Levine (Ed.), *Nebraska symposium on motivation* (Vol. 15, pp. 192–238). Lincoln: University of Nebraska Press.

Kelley, H. H. (1972). *Causal schemata and the attribution process.* Morristown, NJ: General Learning Press.

Lombardi, W. J., Higgins, E. T., & Bargh, J. A. (1987). The role of consciousness in priming effects on categorization: Assimilation versus contrast as a function of awareness of the priming task. *Personality and Social Psychology Bulletin, 13,* 411–429.

Martin, L. L., & Clark, L. F. (1990). Social cognition: Exploring the mental processes involved in human social interaction. In M. W. Eysenck (Ed.), *Cognitive psychology: An international review* (pp. 265–310). New York: Wiley.

Nisbett, R. E., & Ross, L. (1980). *Human inference: Strategies and shortcomings of social judgment.* Englewood Cliffs, NJ: Prentice-Hall.

Nisbett, R. E., Zukier, H., & Lemley, R. (1981). The dilution effect: Nondiagnostic information weakens the impact of diagnostic information. *Cognitive Psychology, 13,* 248–277.

Schwarz, N. (1987). *Stimmung als Information: Untersuchungen zum Einfluß von Stimmungen auf die Bewertung des eigenen Lebens* [Mood as information]. West Berlin, Federal Republic of Germany: Springer-Verlag.

Schwarz, N. (1990). Feelings as information: Informational and motivational functions of affective states. In E. T. Higgins & R. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 527–561). New York: Guilford Press.

Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology, 45,* 513–523.

Schwarz, N., & Clore, G. L. (1988). How do I feel about it? Informative functions of affective states. In K. Fiedler & J. Forgas (Eds.), *Affect, cognition, and social behavior* (pp. 25–43). Toronto, Ontario, Canada: Hogrefe International.

Schwarz, N., Servay, W., & Kumpf, M. (1985). Attribution of arousal as a mediator of the effectiveness of fear-arousing communications. *Journal of Applied Social Psychology, 15,* 74–84.

Schwarz, N., Strack, F., Kommer, D., & Wagner, D. (1987). Soccer, rooms, and the quality of your life: Mood effects of judgments of satisfaction with life in general and with specific life-domains. *European Journal of Social Psychology, 17,* 69–79.

Sherman, S. J., & Corty, E. (1984). Cognitive heuristics. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of social cognition* (Vol. 1, pp. 189–286). Hillsdale, NJ: Erlbaum.

Strack, F. (1985). Urteilsheuristiken [Judgmental heuristics]. In D. Frey & M. Irle (Eds.), *Theorien der Sozialpsychologie* (Vol. 3, pp. 239–267). Bern, Switzerland: Huber.

Strack, F., Schwarz, N., Bless, H., Kübler, A., & Wänke, M. (1990). *Remember the priming episode: A test of Jacoby's bifocational model of memory.* Manuscript submitted for publication.

Taylor, S. E. (1982). The availability bias in social perception and interaction. In D. Kahneman, P. Slovic, & A. Tversky (Eds.), *Judgment under uncertainty: Heuristics and biases* (pp. 190–200). Cambridge, England: Cambridge University Press.

Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive Psychology, 5,* 207–232.

Wyer, R. S., & Srull, T. K. (1989). *Memory and cognition in its social context.* Hillsdale, NJ: Erlbaum.

Zanna, M. P., & Cooper, J. (1974). Dissonance and the pill: An attribution approach to studying the arousal properties of dissonance. *Journal of Personality and Social Psychology, 29,* 703–709.

Zanna, M. P., & Cooper, J. (1976). Dissonance and the attribution process. In J. Harvey, W. Ickes, & R. F. Kidd (Eds.), *New directions in attribution research* (Vol. 1, pp. 199–217). Hillsdale, NJ: Erlbaum.

Zillman, D. (1978). Attribution and misattribution of excitatory reactions. In J. H. Harvey, W. I. Ickes, & R. F. Kidd (Eds.), *New directions in attribution research* (Vol. 2, pp. 335–368). Hillsdale, NJ: Erlbaum.

Zillman, D., & Bryant, J. (1974). Effect of residual excitation on the emotional response to provocation and delayed aggressive behavior. *Journal of Personality and Social Psychology, 30,* 782–791.


Received August 8, 1990
Revision received March 6, 1991
Accepted March 21, 1991 ■

ZUMA-Arbeitsberichte

80/15 Gerhard Arminger, Willibald Nagl, Karl F. Schuessler
Methoden der Analyse zeitbezogener Daten. Vortragsskripten der ZUMA-Arbeitstagung vom 25.09. - 05.10.79

81/07 Erika Brückner, Hans-Peter Kirschner, Rolf Porst, Peter Prüfer, Peter Schmidt
Methodenbericht zum "ALLBUS 1980"

81/19 Manfred Küchler, Thomas P. Wilson, Don H. Zimmerman
Integration von qualitativen und quantitativen Forschungsansätzen

82/03 Gerhard Arminger, Horst Busse, Manfred Küchler
Verallgemeinerte Lineare Modelle in der empirischen Sozialforschung

82/08 Glenn R. Carroll
Dynamic analysis of discrete dependent variables: A didactic essay

82/09 Manfred Küchler
Zur Messung der Stabilität von Wählerpotentialen

82/10 Manfred Küchler
Zur Konstanz der Recallfrage

82/12 Rolf Porst
"ALLBUS 1982" - Systematische Variablenübersicht und erste Ansätze zu einer Kritik des Fragenprogramms

82/13 Peter Ph. Mohler
SAR - Simple AND Retrieval mit dem Siemens-EDT-Textmanipulationsprogramm

82/14 Cornelia Krauth
Vergleichsstudien zum "ALLBUS 1980"

82/21 Werner Hagstotz, Hans-Peter Kirschner, Rolf Porst, Peter Prüfer
Methodenbericht zum "ALLBUS 1982"

83/09 Bernd Wegener
Two approaches to the analysis of judgments of prestige: Interindividual differences and the general scale

83/11 Rolf Porst
Synopse der ALLBUS-Variablen. Die Systematik des ALLBUS-Fragenprogramms und ihre inhaltliche Ausgestaltung im ALLBUS 1980 und ALLBUS 1982

84/01 Manfred Küchler, Peter Ph. Mohler
Qualshop (ZUMA-Arbeitstagung zum "Datenmanagement bei qualitativen Erhebungsverfahren") - Sammlung von Arbeitspapieren und -berichten, Teil I + II

84/02 Bernd Wegener
Gibt es Sozialprestige? Konstruktion und Validität der Magnitude-Prestige-Skala

84/03 Peter Prüfer, Margrit Rexroth
Erfahrungen mit einer Technik zur Bewertung von Interviewerverhalten

84/04 Frank Faulbaum
Ergebnisse der Methodenstudie zur internationalen Vergleichbarkeit von Einstellungsskalen in der Allgemeinen Bevölkerungsumfrage der Sozialwissenschaften (ALLBUS) 1982

84/05 Jürgen Hoffmeyer-Zlotnik
Wohnquartiersbeschreibung. Ein Instrument zur Bestimmung des sozialen Status von Zielhaushalten

84/07 Gabriele Hippler, Hans-Jürgen Hippler
Reducing Refusal Rates in the Case of Threatening Questions: The "Door-in-the-Face" Technique

85/01 Hartmut Esser
Befragtenverhalten als "rationales Handeln" - Zur Erklärung von Antwortverzerrungen in Interviews

85/03 Rolf Porst, Peter Prüfer, Michael Wiedenbeck, Klaus Zeifang
Methodenbericht zum "ALLBUS 1984"

86/01 Dagmar Krebs
Zur Konstruktion von Einstellungsskalen im interkulturellen Vergleich

86/02 Hartmut Esser
Können Befragte lügen? Zum Konzept des "wahren Wertes" im Rahmen der handlungstheoretischen Erklärung von Situationseinflüssen bei der Befragung

86/03 Bernd Wegener
Prestige and Status as Function of Unit Size

86/04 Frank Faulbaum
Very Soft Modeling: The Logical Specification and Analysis of Complex Process Explanations with Arbitrary Degrees of Underidentification and Variables of Arbitrary Aggregation and Measurement Levels

86/05 Peter Prüfer, Margrit Rexroth (Übersetzung: Dorothy Duncan)
On the Use of the Interaction Coding Technique

86/06 Hans-Peter Kirschner
Zur Kessler-Greenberg-Zerlegung der Varianz der Meßdifferenz zwischen zwei Meßzeitpunkten einer Panel-Befragung

86/07 Georg Erdmann
Ansätze zur Abbildung sozialer Systeme mittels nicht-linearer dynamischer Modelle

86/09 Heiner Ritter
Einige Ergebnisse von Vergleichstests zwischen den PC- und Mainframe-Versionen von SPSS und SAS

86/11 Günter Rothe
Bootstrap in generalisierten linearen Modellen

87/01 Klaus Zeifang
Die Test-Retest-Studie zum ALLBUS 1984 - Tabellenband

87/02 Klaus Zeifang
Die Test-Retest-Studie zum ALLBUS 1984 - Abschlußbericht

87/04 Barbara Erbslöh, Michael Wiedenbeck
Methodenbericht zum "ALLBUS 1986"

87/05 Norbert Schwarz, Julia Bienias
What Mediates the Impact of Response Alternatives on Behavioral Reports?

87/06 Norbert Schwarz, Fritz Strack, Gesine Müller, Brigitte Chassein
The Range of Response Alternatives May Determine the Meaning of the Question: Further Evidence on Informative Functions of Response Alternatives

87/07 Fritz Strack, Leonard L. Martin, Norbert Schwarz
The Context Paradox in Attitude Surveys: Assimilation or Contrast?

87/08 Gudmund R. Iversen
Introduction to Contextual Analysis

87/09 Seymour Sudman, Norbert Schwarz
Contributions of Cognitive Psychology to Data Collection in Marketing Research

87/10 Norbert Schwarz, Fritz Strack, Denis Hilton, Gabi Naderer
Base-Rates, Representativeness, and the Logic of Conversation

87/11 George F. Bishop, Hans-Jürgen Hippler, Norbert Schwarz, Fritz Strack
A Comparison of Response Effects in Self-Administered and Telephone Surveys

87/12 Norbert Schwarz
Stimmung als Information. Zum Einfluß von Stimmungen und Emotionen auf evaluative Urteile

88/01 Antje Nebel, Fritz Strack, Norbert Schwarz
Tests als Treatment: Wie die psychologische Messung ihren Gegenstand verändert

88/02 Gerd Bohner, Herbert Bless, Norbert Schwarz, Fritz Strack
What Triggers Causal Attributions? The Impact of Valence and Subjective Probability

88/03 Norbert Schwarz, Fritz Strack
The Survey Interview and the Logic of Conversation: Implications for Questionnaire Construction

88/04 Hans-Jürgen Hippler, Norbert Schwarz
"No Opinion"-Filters: A Cognitive Perspective

88/05 Norbert Schwarz, Fritz Strack
Evaluating One's Life: A Judgment of Subjective Well-Being

88/06 Norbert Schwarz, Herbert Bless, Gerd Bohner, Uwe Harlacher, Margit Kellenbenz
Response Scales as Frames of Reference:
The Impact of Frequency Range on Diagnostic Judgments

88/07 Michael Braun
Allbus-Bibliographie (7. Fassung, Stand: 30.6.88)

88/08 Günter Rothe
Ein Ansatz zur Konstruktion inferenzstatistisch verwertbarer Indices

88/09 Ute Hauck, Reiner Trometer
Methodenbericht
International Social Survey Program - ISSP 1987

88/10 Norbert Schwarz
Assessing frequency reports of mundane behaviors:
Contributions of cognitive psychology to questionnaire construction

88/11 Norbert Schwarz, B. Scheuring (sub.)
Judgments of relationship satisfaction: Inter- and intraindividual comparison strategies as a function of questionnaire strcuture

88/12 Rolf Porst, Michael Schneid
Ausfälle und Verweigerungen bei Panelbefragungen
- Ein Beispiel -

88/13 Cornelia Züll
SPSS-X. Anmerkungen zur Siemens BS2000 Version

88/14 Michael Schneid
Datenerhebung am PC - Vergleich der Interviewprogramme "interv$^{+}$" und "THIS"

88/15 Norbert Schwarz, Bettina Scheuring
Die Vergleichsrichtung bestimmt das Ergebnis von Vergleichsprozessen:
Ist - Idealdiskrepanzen in der Partnerwahrnehmung

89/01 Norbert Schwarz, George F. Bishop, Hans-J. Hippler, Fritz Strack
Psychological Sources Of Response Effects in Self-Administered And Telephone Surveys

89/02 Michael Braun, Reiner Trometer, Michael Wiedenbeck,
Methodenbericht. Allgemeine Bevölkerungsumfrage der Sozialwissenschaften - ALLBUS 1988 -

89/03 Norbert Schwarz
Feelings as Information:
Informational and Motivational Functions of Affective States

89/04 Günter Rothe
Jackknife and Bootstrap:
Resampling-Verfahren zur Genauigkeitsschätzung von Parameterschätzungen

89/05 Herbert Bless, Gerd Bohner, Norbert Schwarz und Fritz Strack
Happy and Mindless?
Moods and the Processing of Persuasive Communications

89/06 Gerd Bohner, Norbert Schwarz und Stefan E. Hormuth
Die Stimmungs-Skala: Eine deutsche Version des "Mood Survey" von Underwood und Froming

89/07 Ulrich Mueller
Evolutionary Fundamentals of Social Inequality, Dominance and Cooperation

89/08 Robert Huckfeldt
Noncompliance and the Limits of Coercion:
The Problematic Enforcement of Unpopular Laws

89/09 Peter Ph. Mohler, Katja Frehsen und Ute Hauck
CUI - Computerunterstützte Inhaltsanalyse
Grundzüge und Auswahlbibliographie zu neueren Anwendungen

89/10 Cornelia Züll, Peter Ph. Mohler
Der General Inquirer III -
Ein Dinosaurier für die historische Forschung

89/11 Fritz Strack, Norbert Schwarz, Brigitte Chassein, Dieter Kern, Dirk Wagner
The Salience of Comparison Standards and the Activation of Social Norms: Consequences for Judgments of Happiness and their Communication

89/12 Jutta Kreiselmaier, Rolf Porst
Methodische Probleme bei der Durchführung telefonischer Befragungen: Stichprobenziehung und Ermittlung von Zielpersonen, Ausschöpfung und Nonresponse, Qualität der Daten.

89/13 Rainer Mathes
Modulsystem und Netzwerktechnik.
Neuere inhaltsanalytische Verfahren zur Analyse von Kommunikationsinhalten.

89/14 Jutta Kreiselmaier, Peter Prüfer, Margrit Rexroth
Der Interviewer im Pretest.
Evaluation der Interviewerleistung und Entwurf eines neuen Pretestkonzepts. April 1989.

89/15 Henrik Tham
Crime as a Social Indicator.

89/16 Ulrich Mueller
Expanding the Theoretical and Methodological Framework of Social Dilemma Research

89/17 Hans-J. Hippler, Norbert Schwarz, Elisabeth Noelle-Neumann
Response Order Effects in Dichotomous Questions:
The Impact of Administration Mode

89/18 Norbert Schwarz, Hans-J. Hippler, Elisabeth Noelle-Neumann, Thomas Münkel
Response Order Effects in Long Lists:
Primacy, Recency, and Asymmetric Contrast Effects

89/19 Wolfgang Meyer
Umweltberichterstattung in der Bundesrepublik Deutschland

89/20 Michael Braun, Reiner Trometer
ALLBUS Bibliographie (8. Fassung, Stand: 30.6. 1989)

89/21 Günter Rothe
Gewichtungen zur Anpassung an Statusvariablen.
Eine Untersuchung am ALLBUS 1986

89/22 Norbert Schwarz, Thomas Münkel, Hans-J. Hippler
What determines a "Perspective"?
Contrast Effects as a Function of the Dimension
Tapped by Preceding Questions

89/23 Norbert Schwarz, Andreas Bayer
Variationen der Fragenreihenfolge als Instrument
der Kausalitätsprüfung: Eine Untersuchung zur Neutralisationstheorie devianten Verhaltens

90/01 Norbert Schwarz, Fritz Strack, Hans-Peter Mai
Assimilation and Contrast Effects in Part-Whole
Question Sequences:
A Conversational Logic Analysis

90/02 Norbert Schwarz, Fritz Strack, Hans-J. Hippler, George Bishop
The Impact of Administration Mode on Response Effects in
Survey Measurement

90/03 Norbert Schwarz, Herbert Bless, Gerd Bohner
Mood and Persuasion: Affective States Influence the
Processing of Persuasive Communications

90/04 Reiner Trometer, Michael Braun
ALLBUS-Bibliographie 90

90/05 Norbert Schwarz, Fritz Strack
Context Effects in Attitude Surveys:
Applying Cognitive Theory to Social Research